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Notice of Allowability	Application No.	Applicant(s)	
	10/565,410	ASPELMAYR ET AL.	
	Examiner	Art Unit	
	Paul Ip	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37.CFR 1.313 and MPEP 1308.


1. ☒ This communication is responsive to the response filed on 4/20/2007.
2. ☒ The allowed claim(s) is/are 10-16.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |


Paul Ip
Primary Examiner
AU 2837

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the specification, on page 7 line 14 delete "5" and insert - - 5A - 5D - -.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: The response filed on 4/20/2007 has been considered in view of the specification and the drawings of this application with respect to the references of the record. Claim 10 is drafted in terms of means plus function incorporated with method steps of generating electrical pulses. Claim 10 has been reconsidered in light of the response filed on 4/20/2007. The references of the record taken alone or in combination fail to teach or suggest:

The inputs into the optimum ignition angle decision device (1) of Takahashi are not value pairs. Takahashi shows three inputs, each carrying a signal indicating a value for a defined parameter. The parameters are not discussed in detail, but they are probably regular engine parameters, such as speed, temperature, lambda number, and the like. The device 1 contains a numerical data table or numerical formula derived from a prior engine test. The value for the given input parameter is compared with the corresponding value derived in the engine test and the closest match then provides the result of the decision. The "numerical data table" or "formula" is but a

lookup table (e.g., characteristic table, characteristic curve). The input signal, then, is but a single value. The input signal does not carry a value pair.

- "Figures 2A and 2B show that the definition of a pulse is different during different processing cycles" – Office action, page 2, bottom.

The pulse trains of Figs. 2A and 2B are related. The first pulse train at the top of Fig. 2A shows the measurement pulse as the shaft rotates and the engine hits UDP (upper dead point). The illustration used by Takahashi is for a 4-cylinder engine. The angle difference between the UDP pulses is necessarily 90 degrees. The second pulse train shown in Fig. 2B is the first pulse train divided by M. In the exemplary embodiment, M is chosen 90. The second pulse train, therefore, represents one pulse per degree shaft rotation. The input signal PR into the Engine Ignition Angle Estimating Device 2 represents actual UDP for each piston, while the output signal PP represents the available resolution of the ignition retarding or advancing adjustment.

The pulse trains 1 and 2 are the same in Takahashi for every processing cycle. There is no change in the definition of any of these pulses during different processing cycles. The definition of the pulses remains the same.

- "Takahashi shows in figures 2A and 2B the pulses comprising two parameters T_{PR} and 90° . It is inherent that the pulses can represent different values such as two angular values or two time values" – Office action, page 3.

As mentioned above, the figures do not show pulses that comprise two parameters. The two labels T_{PR} and 90° are related in that the signal T_{PR} represents the upper dead point of the pistons and the label 90° indicates that the signal pulses are based

on a 4-cylinder engine, where the UDP is reached every 90° of shaft rotation. If the engine were a 6-cylinder engine, for example, the indicator would be 60° instead. Most importantly with regard to the claimed invention, there is absolutely no information or teaching in Takahashi that would suggest defining the pulses to represent different values during different processing cycles.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Ip whose telephone number is (571)-272-1941. The examiner can normally be reached on Monday to Friday from 6:30 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan, can be reached on (571)-272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Internet correspondence **MUST** be provided with a prior written authorization by applicant in the application file record giving the Office authorization to communicate with applicant via e-mail. Without a written authorization by applicant in place, the USPTO will not respond via Internet e-mail to any Internet correspondence which contains information subject to the confidentiality requirement as set forth in 35 U.S.C. 122.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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5/7/2007